complete iterative process is again pursued, which should then produce results that satisfy all of the proposed mirror's specifications. The final process is then to convert the **(X - Y)** data thus acquired to a CNC Machine Tool computer format (say MasterCam) and cut the molds and gages as required.

Having described my invention, I Claim:

1. An aspheric mirror for mounting on an automotive vehicle in a specified location having line-of-sight relationships from the vehicle Operator's Two Eyes, whereupon the mirror's surface curvature is developed by a multiplicity of constant sight-line angular iterations ($\Delta\theta$), for a right side mirror application in a left to right direction, as a function of the ratio (S) of the apparent image size seen in the mirror by the right eye divided by the apparent image size seen in the mirror by the left eye; or for a left side mirror application in a right to left direction, as a function of the ratio (S) of the apparent image size seen in the mirror by the left eye divided by the apparent image size seen in the mirror by the right eye; the beginning points for constant line-of-sight angular iterations ($\Delta\theta$) for a right side mirror being **LO** for the Left Eye and **RO** for the Right Eye, and for a left side mirror being **RO** for the Right Eye and **LO** for the Left Eye, respectively, when reflected lines-of-sight from these two points are parallel to each other and direcred straight rearward to infinity.

2. An aspheric mirror for mounting on an automotive vehicle in a specified location having line-of-sight relationships from the vehicle Operator's Two Eyes, whereupon the mirror's surface curvature is developed by a multiplicity of constant sight-line angular iterations ($\Delta\theta$), for a right side mirror application in a left to right direction, as a function of the ratio (S) of the magnification factor of the apparent image size seen in the mirror by the right eye divided by the magnification factor of the apparent image size seen in the mirror by the left eye; or for a left side mirror application in a right to left direction, as a function of the ratio (S) of the magnification factor of the

30

apparent image size seen in the miror by the left eye divided by the magnification factor of the apparent image size seen in the mirror by the right eye; wherein the ratio (ς) is a function of the instantaneous magnification factors (**m-right**) / (**m-left**) for a right side mirror, or (**m-left**) / (**m-right**) for a left side mirror, as calculated by the formula: **m** = (**-r**) / (**2p** - (**-r**)), with the mirror having (**r**) radius of curvature and the object located (**p**) distance from the mirror's reflective surface on a specified **Focus Line**, which is laterally offset from either the right or left side of the principal vehicle as specified, respectively; the beginning points for constant line-of-sight angular iterations ($\Delta\theta$) for a right side mirror being **LO** for the Left Eye and **RO** for the Right Eye, and for a left side mirror being **RO** for the Right Eye and **LO** for the Left Eye, respectively, when reflected lines-of-sight from these two points are parallel to each other and direcred straight rearward to infinity.

3. The mirror of Claim 2, wherein the ratio (ς) = (ς_H) is a function of the instantaneous horizontal magnification factors (**m-right**) / (**m-left**) for a right side mirror, or (**m-left**) / (**m-right**) for a left side mirror, as calculated for each respective value of (**m**) by the formula: **m** = (**-r**) / (**2p** - (**-r**)), with the mirror having (**r**) radius of curvature and the object located (**p**) distance from the mirror's reflective surface on a specified **Focus Line**, which is laterally offset from either the right or left side of the principal vehicle as specified, respectively.

4. The mirror of Claim 2, wherein the ratio (ς) = (ς_E) is a function of the instantaneous exponential area approximation magnification factors (**m-right**)^2 / (**m-left**)^2 for a right side mirror, or (**m-left**)^2 / (**m-right**)^2 for a left side mirror, as calculated for each respective value of (**m**) by the formula: **m** = (**-r**) / (**2p** - (**-r**)), with the mirror having (**r**) radius of curvature and the object located (**p**) distance from the mirror's reflective surface on a specified **Focus Line**, which is laterally offset from either the right or left side of the principal vehicle as specified, respectively.

31

5. The mirror of Claim 2, wherein the ratio ($\hat{S}$) = ($\hat{S}_A$) is a function of the instantaneous simulated viewed area magnification factors **((mH-right) (%mV-right) / (mH-left) (%mV-left))** for a right side mirror, or **((mH-left) (%mV-left) / (mH-right) (%mV-right))** for a left side mirror, as calculated for each respective value of (**m**) by the formula: **m = (-r) / (2p - (-r))**, with the mirror having (**r**) radius of curvature and the object located (**p**) distance from the mirror's reflective surface on a specified **Focus Line**, which is laterally offset from either the right or left side of the principal vehicle as specified, respectively; where the % value may range between (0% and 100%).

6. The mirror of Claim 2, wherein the ratio ($\hat{S}$) = ($\hat{S}_D$) is a function of the instantaneous simulated volume magnification factors **((mH-horizontal) (mV-vertical) (mG-longitudinal)), ie: ((mHR) (mVR) (mGR) / (mHL) (mVL) (MGL))** for a right side mirror, or **(mHL) (mVL) (mGL) / (mHR) (mVR) (mGR))** for a left side mirror, as calculated for each respective value of (**m**) by the formula: **m = (-r) / (2p - (-r))**, with the mirror having (**r**) radius of curvature and the object located (**p**) distance from the mirror's reflective surface on a specified **Focus Line**, which is laterally offset from either the right or left side of the principal vehicle as specified, respectively; where the horizontal and vertical factors are calculated at a distance **(p)** to the nearest part of the object, and where the longitudinal factor is calculated at a distance **(p)** to a chosen point along the objects true length front to rear.

7. The mirrors of Claims 1 through 6, having horizontal and vertical datum lines originating at and pasing through the **Optical Design Center** point **LO** for a right side mirror and through said point **RO** for a left side mirror, where the points **ZRN** for a right side mirror and **ZLN** for a left side mirror are the last points on the peripheral edge of the mirror's surface, whereupon the lines **(LO-ZRN)** and **(RO-ZLN)** represent the total distance across the right or left mirror surfaces along the horizontal datum line (Y-Y AXIS) from points **LO** or **RO**,

respectively; whereupon the horizontal line **(LO-ZRN)** or **(RO-ZLN)** or a portion of either is rotated downward clockwise about Optical Design point **LO** for a right side mirror and counterclockwise about Optical Design point **RO** for a left side mirror, or any other point as desired, respectively, through any desired angular ray displacement up to 90 degrees to the vertical datum line (X-X axis) through which rotation the slope angles of the mirror's surface (ϕ_n) are progressively increased to it's peripheral edge point **ZRN** or **ZLN**, respectively, whereat (ϕ_N) is the maximum slope angle of the mirror's surface development, whereupon at the vertical datum line (X-X AXIS) the progression may be reversed or continue in any other manner as desired.

8. The mirrors of Claims 1 through 6, having horizontal and vertical datum lines originating at and pasing through the **Optical Design Center** point **LO** for a right side mirror and through said point **RO** for a left side mirror, where the points **ZRN** for a right side mirror and **ZLN** for a left side mirror are the last points on the peripheral edge of the mirror's surface, whereupon the lines **(LO-ZRN)** and **(RO-ZLN)** represent the total distance across the right or left mirror surfaces along the horizontal datum line (Y-Y AXIS) from points **LO** or **RO**, respectively; whereupon the horizontal line **(LO-ZRN)** or **(RO-ZLN)** or a portion of either is rotated downward clockwise about Optical Design point **LO** for a right side mirror and counterclockwise about Optical Design point **RO** for a left side mirror, or any other point as desired, respectively, through any desired angular ray displacement up to 90 degrees to the vertical datum line (X-X axis) through which rotation the slope angles of the mirror's surface (ϕ_n) remain unchanged, but the line elements **(LO-ZRN)** or **(RO-ZLN)** or any segment thereof are progressively foreshortened so as to gradually compress the aspheric surface into a smaller dimension at their peripheral edge points **ZRN** or **ZLN**, respectively, whereat (ϕ_N) remains the maximum slope angle of the mirror's

33

surface development, whereupon at the vertical datum line (X-X AXIS) the progression may be reversed or continue in any other manner as desired.

9. An inside rearview mirror, incorporating any or all of the optical surface characteristics of those mirror's of Claims 1 through 6, enabling said mirror to be able to reflect straight rearward through the rear window, and/or through the right side windows, and/or through the left side windows, of the vehicle; which mirror surface is developed about a nominally centrally located vertical line on it's surface, and the right and left peripheral surfaces of the mirror are developed independently of eachother while sharing a common flat or spherical center portion; or either the right or left peripheral surface is developed, which is then transfered to the opposite side, thus comprising a symmetrically shaped mirror surface.

10. A fender mounted mirror, applied primarilly to Tractors of Heavy Truck Tractor-Trailer type vehicles and to conventional Straight-Truck types, but not limited thereto, having any or all optical characteristics as disclosed in Claims 1 through 8, which mirror may be designed specifically for either the left or right side location, and is designed to observe road surface areas immediately in front of and along side of the front wheels of the Tractor / Truck, as well as rearward toward or beyond the driving wheels of the Tractor / Truck.

11. For mirrors of Claims 1 through 10, materials for construction of the mirrors may be glass, metal, plastic, or any other material suited to a specific application; and said mirrors may be coated and/or constructed in such a way as to provide, but not limited to: standard reflectivity, color tinted surfaces, electrochromatic or other light sensitive dimming characteristics, manual or automatic day / night flip dimming capability, etc..

12. For mirrors of Claims 1 through 11, Molds, supporting Fixtures, and Gages, are disclosed, and may be of slump bending, press bending, injection molding, thermal-forming, or other types, all of which are fabricated to the optical specifications of any of these Claims; for which, if the mirror is a front (first) surface reflector, the female mold portion is formed substantially to the X-Y data evolved by the processes herein disclosed, and the male portion is formed to X-Y values that compensate for the mirror substrate thickness and for any buffering glass cloth (or otherwise) material introduced between the material being molded, or otherwise formed, and the mold itself.

13. For mirrors of Claims 1 through 10, the (S) factor is calculated as a straight line function as shown in Figure 10, beginning at the end of the spherical portion or for the full width of the mirror if no spherical portion is used.

14. For mirrors of Claims 1 through 10, the (S) factor is calculated, as shown in Figure 10, beginning at the end of the spherical portion or for the full width of the mirror if no spherical portion is used, beginning as a circular arc with a straight line depending therefrom.

15. For mirrors of Claims 1 through 10, the (S) factor is calculated as an exponential or other geometric curve expansion beginning at the end of the spherical portion, or for the full mirror width if no spherical portion is used.

16. For mirrors of Claims 13, 14, and 15, where at any point the positive geometric expansion rate of the (S) curve begins to slow down and may even eventually reverse itself, becoming negative, thereby slowing down the rate of decrease in the (S) value, even to the point of causing the (S) value to begin increasing.